

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[PRICE 6D.]

Correspondence and applications for copies to be addressed to Mr. C. W. Hall, c/o U.S. Customs Dept., at 1800 E. 9th St., Denver, Colo. 80202, U.S.A. Inquiries and price may be had.

ST MATTHEW BURN, ESQ., S. R.

ON THE ADOPTION OF WATER OF LEAD.—Dr. Christison, some time since, wrote a paper before the Royal Society of Edinburgh on the above subject, which has lately been a great deal discussed; he described two instances which had lately come under his notice, illustrations of the natural process of certain water again lead. In one case water from a spring was conveyed three quarters of a mile in a leaden pipe, and when so powdered, that a deposit in the bottom of lead pipes of heavy carbonate of lead, and an oxide of lead was seen all of water for some months, when a fine coat of crystalline carbonate of lead was formed all over the inside surface, and an similar action took place in the other pipe, where conveyed half a mile was incorporated in the stone of the water; in this instance the same soil was obtained by heating the pipe full of a solution of plumbic acid, containing pieces of the metal, by which found the product to be an hydrated oxide, when there was no action of carbonic acid, in which case it contained two equivalents of the acid and one of water might not be so carried through leaden pipes, whilst the water is that water which contains less than an atomic of new acid in decomposition should be made of the water after a few days' exposure, in the effect on the lead, and one of the above remarks respecting.

DEVELOPMENT OF MEASURING POWER.—E. Sang, Esq., F.R.S.E.,
admirer of Civil Engineering, Manchester, some time since, addressed a
communication to the *Edinburgh New Philosophical Journal*.—"On a Me-
thod of Regulating the Force actually transmitted through a Driving-Belt,"
which recommended the application of a set of indicators to each of
pulleys over which the belt passes, with counting gear attached, by
which a mere reading off and subtraction will give the amount required.
A Number Number of the *Journal of the Franklin Institute* contains a de-
scription of a plan invented by Samuel Batchelder, Esq., of Salem, agent
the York Cotton Factory, by which the resistance to the motion is re-
gulated, and how many pounds are raised a foot high per minute to
or equal of time, and by taking 33,000 lbs. per horse power, the power
the engine is accurately ascertained. It is simply but accurate; on the
left of the driving pulley is placed two bevelled-twisted wheels, one fixed,
the other revolving, on the shaft; these wheels are connected by two
small pinions, fixed on a cross shaft; through this cross shaft is a bar,
attached similarly to the common clevis, having a fixed weight at one
end, while an accurately adjusted weight can be moved along the other
end, until it balances the lever, which then indicates the exact strain upon
the belt. The number of pounds indicated by the position of the weight
divided by the number of feet the belt moves through per minute, will
give the number of pounds raised one foot high per minute, and a small
table end of the shaft is made to work in a index, which shows the num-
ber of feet through which the belt, or the surface of the pulley, moves in
one time. It is of importance to measure correctly the power of ma-
chinery, as well as the number of strokes per minute, and the velocity of
pinions, and then dynamometer, with the formation of the late Capt. R.
Gordon, which are noticed in the *Journal of the Institution*, gives the result
of the engine the most easy and correct means of obtaining
exact power and every movement of his machinery.

MINING IN THE MIDLAND COUNTIES OF ENGLAND—No. 11.

GRIEVANCES OF MINERS.—The grievances to which miners are subject form an interesting portion of the report under consideration, and shows to what an extent the labouring population of the community have their inadequate means rendered still less by the extortions of those who employ them. The principal grievances complained of are—being obliged to work part of their time without pay, under what are termed "bottles," and the system of paying at public houses, where deductions are made for reckoning drink, and through which a man's employment is regulated according to the quantity of drink he consumes. Money clubs, sick clubs, and raffles, are held at these houses, which are kept either by the bottlers themselves, or by a relation, and to extract a large portion of their pay all manner of enticements are resorted to; even females of the worst character are encouraged to entice the men to these houses. As our readers, generally, may not be aware of the meaning of the word "bottle," we here explain that he is a party who undertakes to work the coal for the owner at a price per ton; hence the more work they can screw out of the men and boys, at as small a price as possible, and the greater inducements they can hold out to the men to spend their money in drink and goods at houses in which they are interested, the larger the profit they are enabled to make. So unpopular has the character become, that the very name of "bottle" is most odious to the ears of the lower orders in South Staffordshire, which, in acquiring evidence on the subject, the answers sufficiently testify. To the inquiry as to their opinion of bottles, the general replies were—"Oh! they are the devil!"—"they want hanging!"—"they are negro drivers!"—"the masters get into bad repute through the bottles," &c.; and to such an extent have their encroachments of the liberty and pay of the miner become, that Mr. Sparrow, a large ironmaster, declared that he was so disgusted with their conduct generally, that "he would go 100 miles to see a bottle hung." What is termed the "bottle" system, appears to have arisen from the circumstance of a want of carts to take off the supply of coal, and although the men still continued working below, deductions were made from their pay in proportion as the business was life at surface. By degrees, the time of working without pay crept on, and a bottle has been known to get in one week a boat and a half of coal (thirty tons) for a "bottle," on which his interest would amount to from 4s. 10s. to 5s. Oftentimes, also, the men are sent down the pit to work a quarter or half a day, and are left at work, perhaps, double the time for which they are paid; their work always is not to go underground unless to work a whole day, but the bottles always endeavour to make them work half or quarter days, if they possibly can; on these occasions a bottle of a liquid called beer, and known among miners as "pit drink," is given to the dupes for some hours' work for the advantage of the bottle. From evidence taken from the mouths of the miners, it would appear, that not only are they cheated by this half and quarter-day employment, but, on measuring their work at the end of the week, they are never paid for as much as they have performed; a sort of under bottle, called a "doggy," is employed by the bottle to take the men's time, measure their work, and always make the returns as low as possible—in fact, doing what the bottles, with all their rapacity, are ashamed to do themselves. The "truck system" is so well known, that it were needless for us to recapitulate the evidence on the subject— suffice it to say, it is carried on in South Staffordshire with all its evils, bearing to the worst extent on the mining population. The giant grievance to the general welfare of families in the coal district is the habit of paying at, and inducing the men to, the public houses, which, in general, are kept by a bottle, or some one closely connected with him or the mining interest. Although, by the Act 5th and 6th Vic., c. 99, the practice of paying wages at public houses is declared illegal, and the wages recoverable, as if the payment had not taken place, it has not, in the most remote degree, abated the practice—no one having ever attempted to put the Act in force; any collier once summoning for wages under such circumstances would never be employed again. By thus paying at public houses, it is late before the pittance earned reaches the family, and they are obliged to get their marketing on the Sunday morning in the best manner they can. The evidence of Mr. Clarke, superintendent of police at Wolverhampton, goes far to show to what an extent the abominable practice of encouraging women of loose character to frequent the public house or beer shop, for the purpose of inducing the men to spend their wages, is carried. He has laid information against several of the houses, which, in one or two instances, has compelled the owners to shut them up and leave; his account of the scenes he has witnessed on a Saturday night is of the most painful character, and it is to be feared that the practice of encouragement to beer houses will never be dropped, unless measures of the most coercive nature be adopted; carelessness and impudence of the worst description are the results, and one instance mentioned shows the truth of this observation in the most glowing colours. From the evidence of a boy about ten years old, it appeared his father was a "doggy," earning 14s. for four days in each week, the boy earned 10s. for the same period, and two daughters 5s. 8d.—making an income of 29s. 8d. to support a family of five. In this case the appearance of the dwelling and its inmates was wretched in the extreme. No trifling ornaments or pictures, or anything to show a taste above the mere brute, existed; only one or two broken chairs and a rickety table constituted the furniture of the miserable abode, and in what should have been the bedroom there was literally nothing within the whitewashed walls but an old flock mattress in one corner, and a heap of straw in the other, and yet the earnings of this family were sufficient to have kept them in decency and comfort, but for the brutalizing effects of the practice under notice, which, in this instance, is so peculiarly prominent. The club system in vogue among the miners, though good in principle, as holding out relief to those who may be labouring under sickness or accident, has become so abused as to be a decided evil. Considerable sums are spent in suppers and feasting, and, if a man is a week or two in service, every advantage is taken to prevent him receiving the benefit to which he is entitled; even the poor widow, who has lost the support of her husband and children, if her husband has kept his payments up, finds she is obliged to spend a portion of the sum to which she is entitled, to add to the demoralization of the community, and swell the coffers of the publican or the beer shop keeper. Raffles are also got up to induce men to spend money, which ought to be carried home to their families—in fact, not only to induce, but to compel, the men to give up part of their earnings. The evidence of one miner on this subject is important. He says—"I was boundman under a bottle named Thomas Terry, and his son Abraham was his doggy; the latter got one of the men to put his gun up for a raffle, and asked me to be a number; I told him I had never practised gambling, and I was not going to begin now, and he told me if I didn't I shouldn't get much work; he also told the pikeman if they didn't take tickets he would have it out of them some other way"—meaning he would measure their work short. When the various grievances to which this mining and degraded race is subject, the little pains that is taken to better their condition, either in a moral or physical point of view, and the deep sadness and desolation which are resorted to by those sort of wretched men who employ them, their condition cannot be wondered at, and we can only hope that knowledge, which is making such rapid advancement among all the other classes of the community, will at length reach the miners of South Staffordshire, and enable him to shake off the thralldom by which he is bound to demoralizing habits, through the cupidity of others, and raise him to that position in the social scale to which, as a member of the human family, he is entitled, notwithstanding his retrogressive employment.

The accidents and violent deaths to which miners are liable will form the subject of remark for the next paper of the series, when we shall again have occasion to direct the attention of our readers to this distressing subject.

Bill to Regulate Steam Boats on the Canadian.—A bill of this nature, and likely to become a law, is now before the Provincial Legislature. It provides that officers shall be appointed to inspect all boats plying on the Canadian waters, as to their construction, &c.—navigation of, inspection to be granted in the vessel—steam boats carrying passengers to be provided with sufficient boats, anchors, and sails—steam boats used as ferries to be secured forward, and the wheel connected with the rudder by iron rods or chains—high government officers not to be used in any passenger boats, except ferry boats, after a certain date. Running, and anchoring to run, ferries—when the bow of the vessel is stopped the safety valve is to be opened. It also provides for the punishment of those by whose carelessness fatal accidents shall happen on inland steam-roads, such accidents to be prima facie evidence of negligence.

Rate of Steam Boats on the Canadian.—In the good service the public execution of the service of the Maritime and Commercial Railway, that within the short space of two days after leaving the proprietors, we understood them, connecting in two-thirds of the required capital, have been applied for.

ORIGINAL CORRESPONDENCE.

MINING IN IRELAND.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In your editorial remarks in your Journal of the 25th ultimo you mention as intention of submitting some remarks on mining in Ireland in your coming Numbers. If the following facts are of any service to you, you are at liberty to make any use you please of them.

In the month of June last a mine was commenced at a spot called Dharroo, some four miles north of Crookhaven; its natural advantages were great, being situated on the verge of a cliff thirty fathoms in height. The lode, which is composed of quartz, quantities of gossan, and iron pyrites, intermixed with yellow copper ore, was from five to six feet wide; an shaft was commenced on the course of the lode, which has been driven over thirty fathoms, and a whim shaft has also been sunk, to communicate with it—and the result has been, that a cargo of fifty-five tons of ore has been shipped to Swansea, which will be followed every two months by the same quantity—leaving large reserves; notwithstanding which, parties cannot be found to assist in developing the great mineral resources of this country.

Candy Carb, Dec. 4.

MR. RYAN'S ECONOMIC METHOD OF WORKING MINES, AND REMOVING THE CAUSES OF SUFFOCATION.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In your paper of 25th ult., an article appeared "On the Ventilation of Mines," from which it would seem that Mr. Ryan, mining engineer, F.S.A., as far back as the year 1864, matured, according to his own statement (for the particulars seem to be unknown to you) a method of working and ventilating mines, much more easy and profitable than the present system, and on which "not a single explosion has ever occurred of carburetted hydrogen." It is, therefore, thirty-nine years since Mr. Ryan matured his method of working, and as, in that interval, it would have saved from 40,000 to 60,000 lives, and would also, according to the statement, have added greatly to the profit of the coalowners, as well as removed much of the difficulty of working their mines; it is, surely, astonishing, that the plan has not, long before now, been universally adopted, "provided always" that the system will, in practice, realise all, or the larger part, of what is advanced in its favour. As Mr. Ryan's plan has been so long in abeyance, I should feel very doubtful of its right to lay claim to those high recommendations which, in the *Mining Journal*, on the authority of a communication addressed by the inventor to the coalowners of the Tyne and Wear, are attributed to it, unless the same were well borne out by undeniable facts; but, certainly, the following extracts from your paper above referred to, look very like fact, if it were not so, the inventor's character for veracity and good faith would be placed in a most unpleasant predicament:—"The collieries of Lord Dudley and Ward were of the most fiery character, and had to be exploded by the fire three times a day, to render working possible, and in which Mr. Smith stated, in his evidence before the Parliamentary committee, the deaths amounted to 1000 annually (Is there an error of the press in these figures?), but which were cleared by Mr. Ryan from all danger from hydrogen or carbonic acid gases, and the management, which was previously ruinously expensive, was so reduced as to render the property a source of great wealth. This success led him to numerous collieries, and in all the same results were obtained—viz., perfect safety for human life, and economy in obtaining the coal."—"On giving a lecture on the subject at the Royal Institution, Sir Humphry Davy observed—'So clear does this principle appear to me, that I consider that all lives lost in future should be charged and treated as manslaughter.' And yet, though these statements look so very like fact, Mr. Ryan, as if he feared the subject with contradictions, has not yet, at least, accepted your invitation to come forward, and explain his principles. There can be no secret in them, being, according to his statement, in active operation in 'numerous collieries.' I beg, therefore, to suggest that, if Mr. Ryan continues longer silent, you should particularly invite the attention of the managers of Lord Dudley and Ward's, or some other of these numerous collieries—or, possibly, that very widely-informed gentleman, Mr. Murray—in the matter, with a view to elucidate this, at present, mysterious, but, what possibly may be, most important subject. The common humanity, and the ordinary (and best) impulses of human nature, will, I am sure, induce some of these gentlemen immediately to comply with your request, if the subject be of half the importance that is represented; and, if not, I dare say, they will feel on objection, through your widely-circulated columns, 'to set the matter at rest.' But why Mr. Ryan himself should object to this, is to me inexplicable. Publicly would, 'if all's right,' assure, for the great benefit both of masters and men, the general adoption of his plan—and, for himself personally, in case any loss of ten, advantageous employment, thereby he can, by no means, say longer secret."—Dec. 6.

[The importance which we naturally attach to the subject of the preservation of the life of the collier, as evidenced on more than one occasion, must plead for an excuse, if such were necessary, for bringing under the notice of our readers any invention, whatever may be its merits, and hence, in directing attention to that of Mr. Ryan, we are alone influenced by the desire of eliciting the opinions of others. We are, however, satisfied, no matter what plan be adopted, that, without the interference of the legislature, nothing will be effected. We hope Mr. Ryan will speak for himself, in reply to 'A Merchant,' to whom we are indebted for further directing attention to the subject.]

VALUE OF MINES—ACTUAL AND REPRESENTED.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—It is really amazing to see how easily the directors and secretaries of mining companies, together with the London shareholders, treat Johnny Bull, and sell his pockets, by writing up the imaginary value and price of shares in the various concerns hereabouts. I have merely taken a very cursory glance at the "share list" in your last Journal, and the following result is three shillings—

Trompsburg	100 shares, at 7/6 each, in 1871, 7/6—Bought at 7/6 p. sec.—Drove 1-10
Troutbeck	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10
B. B. B.	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10

Now, I look on that picture, and on this, "and from your own opinion; the under-mentioned are not paying any dividends—

Graham	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10
United Hill	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10
Stacy Park	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10
West Hill	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10
Trompsburg	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10
W. B. B.	100 shares, at 4/6 each, in 1871, 4/6—Bought at 4/6 p. sec.—Drove 1-10

I could enlarge, but prefer handing you the facts and statements—and to be contradicted—what my temporary end here has enabled me to collect, and which are at your service.

Commercial Hotel, Cambridge, Dec. 5.

[We are obliged to 'A Commercial,' who we have had sight of for some months. It must be understood, that, in giving insertion to letters of this nature, we in no way hold ourselves responsible for their correctness, while we are anxious to give the greatest publicity to any information bearing on the mining interest—included, in the privacy of information, may be attributed to the present state of the 'market.' We recommended the advantages to mine generally to be treated as copies of the monthly or two-monthly accounts, and we will give them insertion. There is nothing like candour and honesty.]

ON THE PRECIPITATING PROPERTIES OF COPPER.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I will thank any of your correspondents if they can inform me if copper can precipitate iron from its solution, and what article the former does precipitate? You may think it rather strange my asking such a question; but, much to my surprise, I was told that copper could precipitate iron, by a person at a scientific institution, and saw handed out from the *Polytechnic*.

[We should be disposed to smile at the idea proposed, whether by a learned professor, or whoever might have arrived at the conclusion that copper can precipitate iron. It is quite clear that the party advancing such opinion did not understand the subject, and, possibly, confounded it with the precipitation of copper on iron, or our correspondent must have misunderstood him.]

FIRES AND BOILERWATERS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Is an interesting conversation I had lately with Mr. Stirling, an eminent manufacturer of Liverpool, who incidentally mentioned a remark made by Mr. Walker, C.E., in the effect, that, in consequence of the action of the water on steam economy, blocks have been detached from the general mass, in an insulated form, as if such had been produced by one a large, as the physicist would term it. Mr. Walker, though he mentioned the fact, alluded to it as a mere curiosity; but I must confess, that the solution of the problem, propounded to me by Mr. Stirling, seems every way satisfactory. That a vacuum is formed by the water on the surface of the steam, which consequently follows the motion of the water, by the atmospheric pressure of air. The question appears to me to be one of intense interest and importance, there it seems an difficult matter to apply a remedy. Which, therefore, I would propose to be by means of perforated tubes, attached to the exposed surface of iron vessels, pipes, and other fittings, from the bottom of the water. I am certain that I could not see a few phenomena in our correspondence of the species advanced, but I may mention myself with one fact, particularly, and to the point. Some years ago, the lightning struck the wall

of a new church, a few miles from Birmingham, when more than one block of stone was pulled out of the wall, as if detached by a cork screw, while the wall otherwise remained intact. All who are acquainted with practical electricity, and the effects of lightning, are well aware of the fact that vacuum are frequent occurrences.—Dec. 4.

J. MURRAY.

COLLIERY ROYALTIES—ENGLAND AND AMERICA.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Referring to the interesting paper, published in your last Journal, on the imagined probable establishment of a trade in American coal with Europe, there is one subject on which I should be greatly obliged if you, or any of your practical correspondents, would furnish me with information—I mean the present actual rates, or material dues, or royalties, chargeable in England, and particularly in Wales, for each ton of coal. I am aware that this must be, in some degree, a matter of private bargain between the lease and lessors; but we should be glad to be informed of the principle which mainly guides the parties in arriving at the terms. In Pennsylvania this is a very unsettled point—I believe generally about 1s. sterling, but influenced by locality.—Dec. 7.

R. C. T. (of Philadelphia).

[The royalty varies, a dead rent being very generally imposed. We should say the dues are from 6d. to 1s. per ton. We will, however, attend to this next week.]

BEALE'S ROTARY STEAM-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—With all due deference to Mr. Beale for his invention (which, at all events, has the merit of ingenuity and simplicity), I would offer a few remarks on the same. From the appearance of the diagram in your scientific Journal, there is an provision for keeping the sides of the revolving piston steam-tight, otherwise than the accuracy of the workmanship in fitting up the machine; which, I think, however carefully done, will not prevent the steam from slipping—on this account the plan might be objectionable for condensing engines; the wear and tear of the rollers, and interior surface of the cylinder against which they revolve, must be immense, and very soon become worn into irregular surfaces (the texture of the iron being variable), not unlike an indigo-mill or revolving barrel, used for smoothing iron shot. The machine might work tolerably well for a short time when new, with high-pressure steam, but, certainly, would not stand the test of time with the regular load on it of a manufacturing concern, where the steam is condensed. In my opinion, there must be a superior application of the power of steam than the one in question, before the capabilities of a rotary engine are properly developed, and before the public confidence can be placed in them for manufacturing purposes; from the refinements of mechanical ingenuity now a-days, I have no doubt of its ultimate accomplishment.

EXTRACTANT.

Bradford, Dec. 4.

BOILER SCALE AND DEPOSIT.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I would venture to ask your valuable correspondent, Mr. Murray, or other chemical authority, through the medium of your scientific Journal, What is the best material, or ingredients, to put in a steam-boiler for holding in suspension, or keeping away from the water, the sulphate or carbonate of lime, so that such might be collected in a receiver and occasionally blown out, which would otherwise be deposited in the bottom and sides, and become petrified, to the manifest injury of the boiler and waste of fuel, from its being a non-conductor of heat? Information on this head would be obliging.

A STOKER.

Bradford, Dec. 4.

INCORUSTATIONS IN BOILERS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—The calcareous deposits which form the incrustations in steam-boilers are of two kinds—namely, sulphate and carbonate of lime, both of which are usually tinged with oxide of iron; these become insoluble, and are precipitated, by the separation, by means of boiling, of a definite proportion of their chemically combined acid. It was to meet this view of the case that I proposed diluted sulphuric acid, and that in such a state of extreme dilution, as to be only sensible to the most delicate reagents. I can see no reason for its non-adoption, and, in such a feeble or attenuated state, its action on the boiler would be null. Doubtless, in the former case, sulphuric acid would suffice, but sulphuric acid would meet them both. By a memorandum I had made, and overlooked, it occurred to me, in virtue of some experiments made for the purpose, that the sulphuric principle might be successfully applied in the interior of the steam-boiler for its protection from incrustation, &c.—namely, the attachment of discs of iron to copper boilers, and of zinc to those of iron.—Dec. 4.

J. MURRAY.

Bradford, Dec. 4.

ON THE HIGH TEMPERATURE OF WATER IN DEEP MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having noticed in your valuable columns some remarks on the high temperature of the water in the "United Mines of Cornwall," I have thought much of what can be the cause of this heated water. I know a mine, in the parish of Calstock, where the water issuing from the rocks is well up to the temperature of animal life, and at the shallow depth of about thirty-five to forty fathoms from grass. Some people maintain it to be produced by a continuous strong copper lode, and, consequently, affording good indications for a quantity of ore. If so, or otherwise, I do not profess myself a competent judge to say, but should feel exceedingly thankful if the gentleman connected with the Polytechnic Society of Cornwall, or any others, would unfold, in any measure (through your valuable columns), this great and strange fact of the earth producing hot water. I should not have troubled you, but from a knowledge that many of your readers are anxious concerning this strange phenomenon; and if some of your valued correspondents would favour us with their views on the subject, I, for one, should feel grateful.

A MINER OF THE EASTERN DISTRICT.

Callington, Dec. 7.

PATENT ECONOMIC WOODEN RAILWAY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I am rather surprised that the advantages of what is termed the patent economic wooden railway have not (though still advertising their principles) met, in some way or other, my communication, inserted in your valuable paper of the 25th ult. Discussion is, in general, the only way to settle truth, and the system of Mr. Fowler's patent must, indeed, be founded upon a fragile basis, if there is not a point out of a letter or commendatory of the principle open to an attack. Mr. Motley's letter does not go in the establishing of the principle, but in the framing of speculations results—taking it for granted, I suppose, that the experiments at Vauxhall were in every way successful. I am one of the first to admit Mr. Motley's talent, but a little more professional accuracy ought to have been exhibited by him in his inquiries and communications, as parties ignorant of the matter are apt to be imposed with the views of one or two know-nothings, and resolve them in their minds as facts or certainties.—London, Dec. 4.

[We perceive Mr. Fowler or Mr. Motley will notice the letter of 'C. E.' in which case we shall readily give insertion to the correspondence which may result—the subject being one of interest and importance.]

THE HYDRAULIC RAILWAY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Knowing, as I do, the interest that is felt by many in the above-mentioned invention, I should deem myself unworthy of any notice in public columns, if, by your kind permission, I did not, from time to time, state, for general information, its position and prospects in the *Mining Journal*. I am happy, Sir, to inform you, and that portion of the thinking and scientific public who attentively watch the invention, that the interest it has excited is now markedly on the increase, and that in quarters where a favourable opinion would do honour to any invention; a well grounded confidence, arising out of a close investigation into the merits, is expressed on the ultimate success of the hydraulic railway. This, to accurate observers, will probably appear to be the natural result of the very peculiar position the invention has for some time maintained. Everything has been done that could be thought of, to lay the matter fairly and fully before the public. I am almost ashamed of the amount in which I have trespassed on your liberality, and the space I have unconsciously occupied in your valuable columns, in order to make clear the real state of the case, and to explain the great leading principles on which the invention is based, and describe the whole detail with a minuteness which probably even had a strong system would bear; and, after all, the invention stands forward in the face of day, with its fundamental principles unassailable, the detail undisputed, and the economy of its practical application unquestioned. It is, in fact, time, wonderful—the converse would be—that the system should be so extensively adding to its friends; still, I will not yet pretend to declare the point where I can be enabled to perceive the hydraulic railway that practical trial which I can make no longer, when it does take place, will stamp its efficiency, and prove its enormous power; that point may still be at some distance, or it may be very near. In favour of the latter, you may be satisfied, the dense mass arrived by experiment to find good and profitable results, and the small amount I should require practically to test the invention. When I say "small amount," I shall be understood as speaking comparatively, and not, Sir, and all parties who are in possession of my data, will, I believe, readily admit it would be small, indeed, when compared with the labour resulting from a successful trial. In the meantime, all those parties who, for public motives, if the advancement of science to their object, or the public, if they are looking out for railway investments for their property—all such parties, I repeat it, who have their attention fixed on this invention, may rest perfectly satisfied that I shall not on any circumstances opportunity of keeping before the public, and pressing on its attention, this system of hydraulic propulsion—(and it, as it is proved to be successful)—as then which all that is past seems destined to suggest.

J. G. BENTLEY, ESQ.

Buck, Dec. 4.

P.S.—It would be most gratifying to find you publishing the *Notes of Commerce* for a Parliamentary committee, as suggested in your impression of

These *Reinforced-Concrete* girders are now employed in a considerable extent in building for roofing. These plates are something similar to the wrought-iron corrugated plates used for the covered part of the Illinois Railroad. The peculiarity of the cast-iron plates is, that they form a regular arch, without the support of struts, ties, or skeleton frames-work. Each plate only is required to support the weight of the adjacent plates; so that the whole consists of a roof of true incrustation in every respect as much as if the plates were of stone or marble, and, therefore, only required to support the first load. The extent of the corrugations will be best described, by giving that the longitudinal section of the roof resembles a series of concentric circles, the smallest circle being about 1000, and the length of side two miles. The size of the plates is fifty inches by twenty-six inches, weight 275 lbs., the adjacent ends are made to abut and overlap, while the ends merely overlap. So far as experiment can yet go, as iron structures of this kind, pass through experiment by placing on other chemical appliances, seems to be of almost infinite durability. This kind of roof has been applied to some extent at Chicago and Green Cove Works, near Chicago. The structure here used, of a very different description, has been partially destroyed in Chicago, composed of very light cast-iron tiles, which will not support a partial roof, supported by such an longitudinal column, some might suppose or wonder. The tiles are eight inches long by six inches wide, are made of an built in thickness, roof with one joint; weight about 100 lbs. This form of roof is, we believe, the original invention of Messrs. Hill and Crawford, and is at present manufactured by Messrs. Adams and Sons, Marine Foundry, Chicago. And the cheapness of this roof equal the expense and lightness, it would be used extensively. At present we will do not mean to be able to be substituted, — Adams.

are London Railway.—A new road, it is said, since acquisition, or, at least, of railways is as much in fashion at present. In the vicinity of the London and Birmingham Railway, the forward state of a works on the West London Railway, which he understands will be completed by the end of this month. He indicates a line of the West London right to be obtained by two successive lines, and that it would prove a most profitable route for the traffic either of the London and Birmingham, or of the new Western Railway, in case of which it will no long have to contend against the Great Eastern. He says, he considers it the responsibility of those to report a separate establishment; but that it could be worked by one of the two principal lines at a trifling extra cost.—*Edinburgh Times.*

